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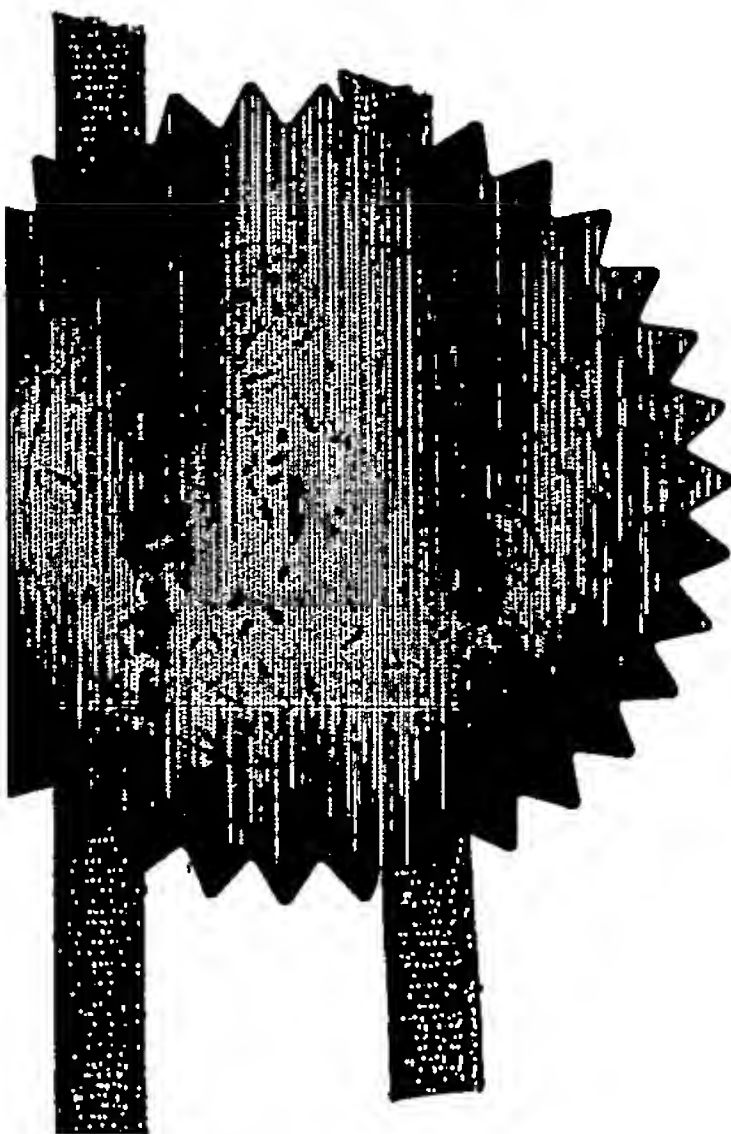
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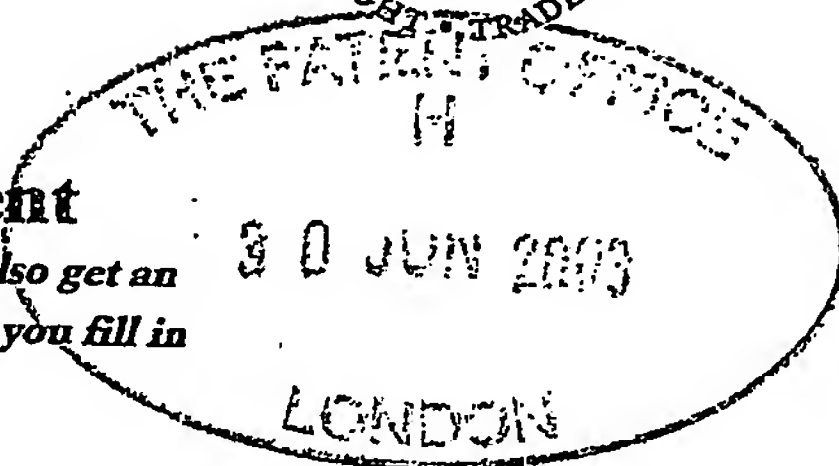
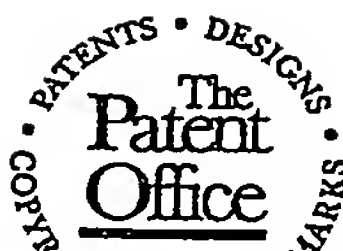
Signed

Dated

16 July 2004



Patent Office  
1st 1977



01JUL03 E919073-4 D01821  
P01/7700-0.00-0315303.8

# Request for grant of a patent

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The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

1. Your reference

Jg-2996

2. Patent application number

(The Patent Office will fill in this part)

0315303.8

30 JUN 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Constant Developments Limited,  
Wilsons Corner,  
1st Floor,  
1 - 5 Ingrave Road,  
Brentwood,  
Essex  
CM15 8AP  
United Kingdom  
United Kingdom 826 3833001

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

SEATING APPARATUS FOR USE ON A VEHICLE  
HAVING A STORAGE AREA NORMALLY USED  
FOR CARRYING CARGO

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Graham Jones & Company  
77 Beaconsfield Road,  
Blackheath,  
London  
SE3 7LG

Patents ADP number (if you know it)

2097001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

a) any applicant named in part 3 is not an inventor, or

b) there is an inventor who is not named as an applicant, or

c) any named applicant is a corporate body.

See note (d))

# Patents Form 1/77

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Do not count copies of the same document

Continuation sheets of this form

Description

Claim(s)

Abstract

Drawing(s)

9

1

1

8 + 8

Jim

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

3

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

*G.H. Jones*

Date 30/06/03

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr. G.H. Jones

020 8858 4039

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**SEATING APPARATUS FOR USE ON A**  
**VEHICLE HAVING A STORAGE AREA**  
**NORMALLY USED FOR CARRYING CARGO**

This invention relates to seating apparatus and, more especially, this invention relates to seating apparatus for use on a vehicle having a storage area normally used for carrying cargo. This invention also relates to the vehicle when provided with the seating apparatus.

Vehicles for carrying cargo are often in the form of a truck having a driving cab and a back which forms the storage area. The back of the vehicle can be a flat back or it can be canvas-covered with drop down sides and a tail gate. There is generally no structural protection for the storage area. If the storage area is to carry persons, then it is known to install bench-type seating with specific securing means securing the bench-type seating to the back of the vehicle. In the event that the vehicle is involved in an accident, the persons sitting on the bench-type seating are often thrown about and they invariably suffer injury or death.

It is an aim of the present invention to obviate or reduce the above mentioned problem.

Accordingly, in one non-limiting embodiment of the present invention there is provided seating apparatus for use on a vehicle having a storage area normally used for carrying cargo, which seating apparatus comprises a frame giving roll over protection to a person seated on the seating apparatus

in the event that the vehicle should roll over, at least one seat mounted in the frame, and securing means for releasably securing the seating apparatus on the storage area of the vehicle whereby the seating apparatus is able to be secured on the storage area and removed from the storage area as desired.

Due to the presence of the frame, the seating apparatus of the present invention gives a person sitting in the seat good protection in the event of the vehicle having an accident. The frame is particularly advantageous in the event that the vehicle should roll over, as may occur in rough terrain. In this case, the frame gives roll over protection to the person seated on the seating apparatus. The seating apparatus is also advantageous in that it can easily be secured to the storage area and removed from the storage area. Thus the seating apparatus can be installed when desired, and removed when it is not required and when the storage area is required to have more storage space for receiving the cargo.

Preferably, the seat is demountable from the frame. This may facilitate carrying installation and storage of the seating apparatus. Where the seat is demountable from the frame, then the seat may be mounted by a spring bolt mechanism. Other mounting mechanisms may be employed. If desired, the seat can be permanently fixed to the frame.

Preferably, the seat is a foldable seat. If desired however the seat may be a non-foldable seat.



The frame may be able to receive from one to four of the seats. Where the seats are demountable from the frame, any required number of seats can easily and quickly be secured to the frame.

Advantageously, the frame is a modular frame which is able to be connected to at least one further similar modular frame. Thus, for example, if four frames were connected together, then with each frame being able to contain four seats, there would be a maximum of sixteen seats for carrying sixteen persons.

Usually, the securing means will secure the frame direct to the storage area.

The securing means may be a quick release securing means. The securing means may be a latch and shackle quick release securing means. Alternatively, the securing means may be a plug and socket quick release securing means. Alternatively, the securing means may be a hook and socket quick release securing means. Any suitable and appropriate type of securing means may be employed, including permanent securing means and quick release securing means.

Advantageously, the frame is a foldable frame. The use of a foldable frame may facilitate installation of the frame, storage and transport. If desired however the frame may however be a non-foldable frame.

Preferably, the frame is of an open tubular construction. Other constructions for the frame may be employed.

The seating apparatus may include a stowage space underneath the seat.

The seating apparatus may include holder means for holding an object to be carried by a person sitting in the seat. The object may be a tool, a weapon or any other suitable and appropriate object.

The seating apparatus may include lateral restraint means for a person seated on the seat.

The seating apparatus may generally include a headrest. The headrest may be curved to give front-to-back and side-to-side restraint.

The seating apparatus may also include a seat belt.

As indicated above, the present invention also provides a vehicle when provided with the seating apparatus.

Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which;

Figure 1 shows seating apparatus of the present invention in use;

Figure 2 shows a frame forming part of the seating apparatus shown in Figure 1;

Figures 3, 4 and 5 show securing means forming part of the seating apparatus shown in Figure 1;

Figures 6 and 7 show two alternative type of securing means to those shown in Figures 3 – 5;

Figures 8 – 12 show further alternative types of securing means to the securing means shown in Figures 3 – 5;

Figure 13 shows four modular frames connected together;

Figure 14 shows a foldable seat which is also demountable from a seat frame.

Figure 15 shows the seat of Figure 14 on the seat frame and being unfolded;

Figures 16 and 17 show a person sitting on the seat of Figures 14 and 15;

Figure 18 shows part of a frame of the seating apparatus;

Figure 19 shows in more detail a top joint shown in Figure 18;

Figure 20 shows in more detail a bottom joint shown in Figure 18;

Figure 21 shows a top joint corner bracing arrangement for a frame used in the seating apparatus;

Figure 22 shows pictorially a seat forming part of the seating apparatus; and

Figure 23 shows in more detail the operation of a locking pin in its disengaged position for the seat shown in Figure 22.

Referring to Figures 1 – 5, there is shown seating apparatus 2 for use on a vehicle 4 having a storage area 6 normally used for carrying cargo 8. For simplicity of illustration in Figure 1, only the storage area 6 in the form of a flat bed back of a truck has been shown. A driving cab and wheels for the truck have not been shown since they are not central to the invention. The cargo 8 is shown secured in position on the cargo area 8 by straps 10.

The seating apparatus 2 comprises a frame 12 giving roll over protection to a person 14 seated on the seating apparatus 2 in the event that the vehicle 4 should roll over. The seating apparatus also comprises at least one seat 16 mounted on the frame. As shown in Figure 1, there are two seats 16 for two persons 14.



The seating apparatus 2 further comprises securing means 18 for releasably securing the seating apparatus 2 on the storage area 6 of the vehicle 4. Because the securing means 18 is releasable, the seating apparatus 2 is able to be secured on the storage area 6 and removed from the storage area 6 as desired. Thus when the storage area is to carry one or more persons 14, then the seating apparatus can be installed. If one or more persons 14 are not to be carried, then the seating apparatus 2 can be removed and the storage area 6 then is able to be used to its maximum extent for carrying the cargo 8.

The seat 16 is demountable from the frame 12. The seat is mounted by a spring bolt mechanism. The seat is a foldable seat.

The frame 12 is able to receive up to four of the seats 16, with two seats 16 being on one side of the frame 12 and two seats 16 being on the other side of the frame 12.

The frame 12 is a modular frame which is able to be connected to at least one further similar modular frame.

The securing means 18 secures the frame to the storage area. The securing means 18 is a quick release securing means 18 as can be appreciated from Figures 3, 4 and 5. More specifically, the securing means 18 is a latch and shackle quick-release securing means 18 having a latch 20 and a shackle 22. Figure 4 shows the shackle 22 in a deployed condition. Figure 5 shows the shackle 22 in a rest condition. In the rest condition, the shackle 22 rests in V-shaped recess 24. This recess may be of other shapes if desired. As shown in Figures 3, 4 and 5, the shackle 22 is

provided in a box 26. The shackle 22 could alternatively be secured to a part of the storage area 6, for example a strengthening beam running underneath the part of the storage area 6 shown in Figure 1.

Figure 6 shows a plug and socket quick release securing means 28 which can alternatively be employed to the securing means 18 shown in Figures 3, 4 and 5. As shown in Figure 6, a plug 30 is raised and lowered by a lever 32. When lowered, the plug 30 fits in a socket 34 underneath the storage area 6.

Figure 7 shows an alternative plug and socket quick release securing means 36 which is alternative to the securing means 28 shown in Figure 6. In Figure 7, it will be seen that a plug or cam member 38 is able to expand two halves of a plug 40.

Figures 8 and 9 show further alternative securing means 42 in which one member 44 fits into a box 46. The member 44 is raised and lowered by a lever 48.

Figure 10 is a perspective view of one type of box 46 with an anchor bar 50. Figure 11 shows an alternative box 52 with an anchor bar 54.

Figure 12 shows two different designs for the member 44. It will be seen that each member 44 has a hook portion 56 for locating around the anchor bar 50 or 54.

Figure 13 shows four units of the seating apparatus 2, connected together with the separate units being in modular form to allow the connection. Eight persons 14 are shown seated along one side of the seating apparatus 2. Another eight persons could be seated along the other

side of the seating apparatus 2. As can be appreciated from a comparison of Figures 1 and 13, the cargo 8 has been removed from the storage area 6 in Figure 13 in order to provide maximum seating availability.

Figure 13 also shows schematically in the form of the rectilinear area 58, the survival space that is provided for one of the persons 14 due to the frame 12.

Figure 14 shows a seat 60 comprising a seat frame 62 and a seat part 64.

Figure 15 shows the seat 60 of Figure 14 assembled and being unfolded. The seat 60 being a foldable seat.

Figures 16 and 17 show a person 14 sitting on the seat 60. Figure 16 shows how there is a stowage space 66 underneath the seat. Figure 17 shows how the seat 60 has a head restraint 68 which is curved to give front-to-back and side-to-side protection for the head of the person 14. Figures 16 and 17 both show how the seat 60 is provided with a seat belt 70.

Referring to Figures 18, 19 and 20, there is shown part of a frame 72 of seating apparatus of the invention. The frame 72 comprises a top joint 74 and a lower joint 76. The top joint 74 is best seen in Figure 19. As shown by arrows 78, 90° rotation is allowed by frame members 80. The frame members 80 pivot on pivot pins 82 which extend through mounting plates 84.

The lower joint 76 is best seen from Figure 20. Frame members 86 can be rotated through 90° as indicated by arrows 88. The rotation of the

frame members 86 is permitted by pivot pins 90 extending through a mounting plate 92.

Figure 21 shows a top joint corner bracing arrangement 94 comprising a removable locking pin 96. Rotation for storage is indicated by arrow 78.

Figure 22 shows pictorially a seat 98. The seat 98 is held in position by a lower locking pin arrangement 100. The lower locking pin arrangement 100 is best seen from Figure 23. More specifically, the seat 98 has a seat frame 102 which locates in a main roll over protection frame 12 shown in previous drawings. The seat is secured in position by a locking pin. A spring loaded pin 104 rotates to engage as shown by arrows 106, 108.

It is to be appreciated that the embodiments of the invention described above with reference to the accompanying drawings have been given by way of example only and that modifications may be effected. Thus, for example, the seating apparatus may be arranged to have holder means for holding an object to be carried by a person 14 sitting in the seat 16. The frame 12 is shown to be of an open tubular construction but other constructions may be employed and other shapes for the frame may also be employed.



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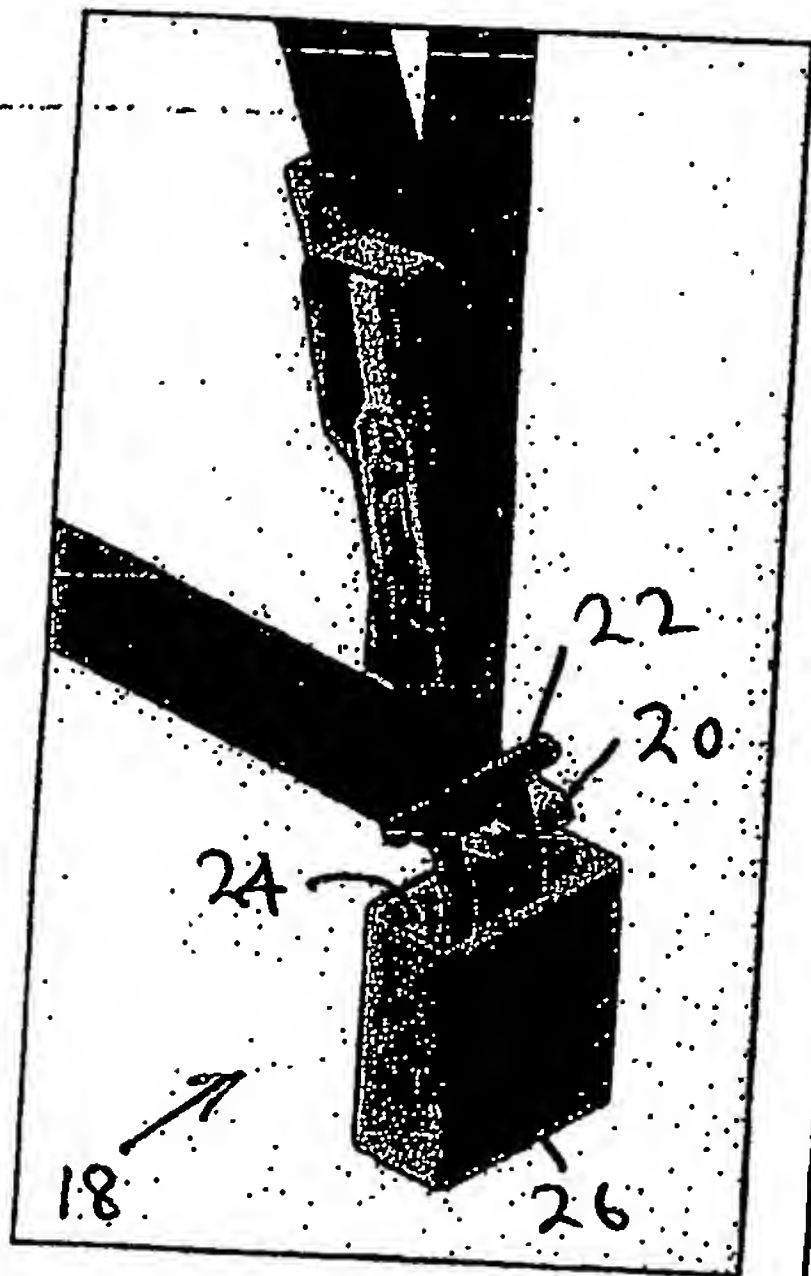


Diagram J  
FIG 3

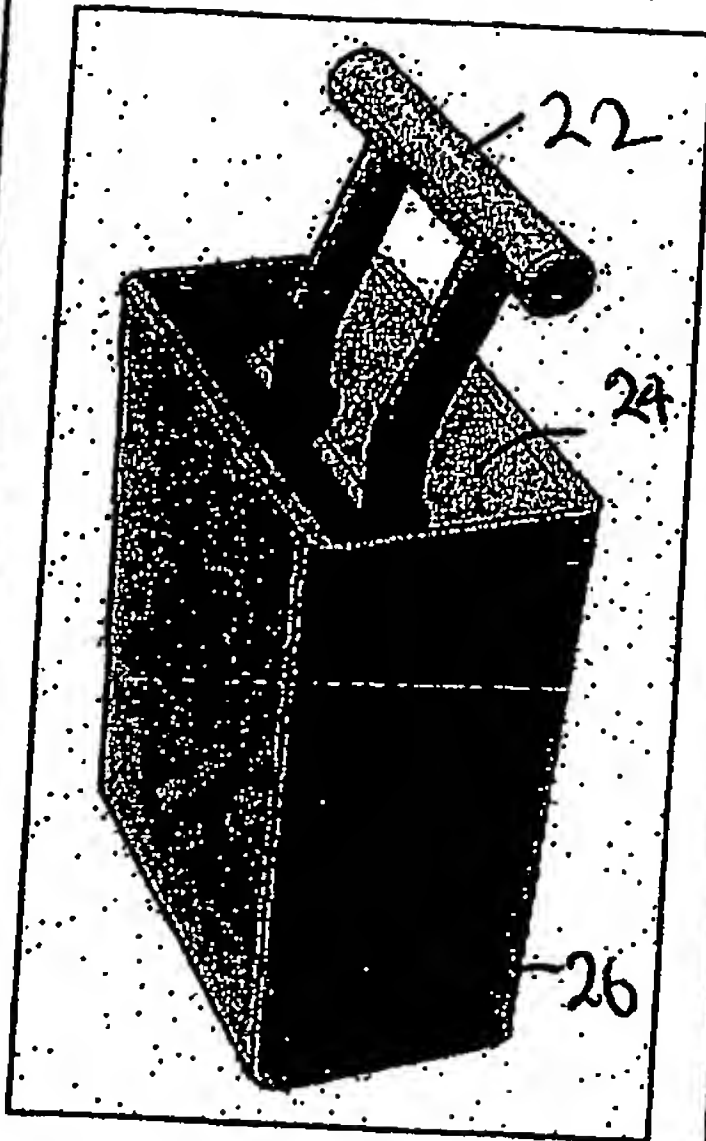


Diagram K  
FIG 4

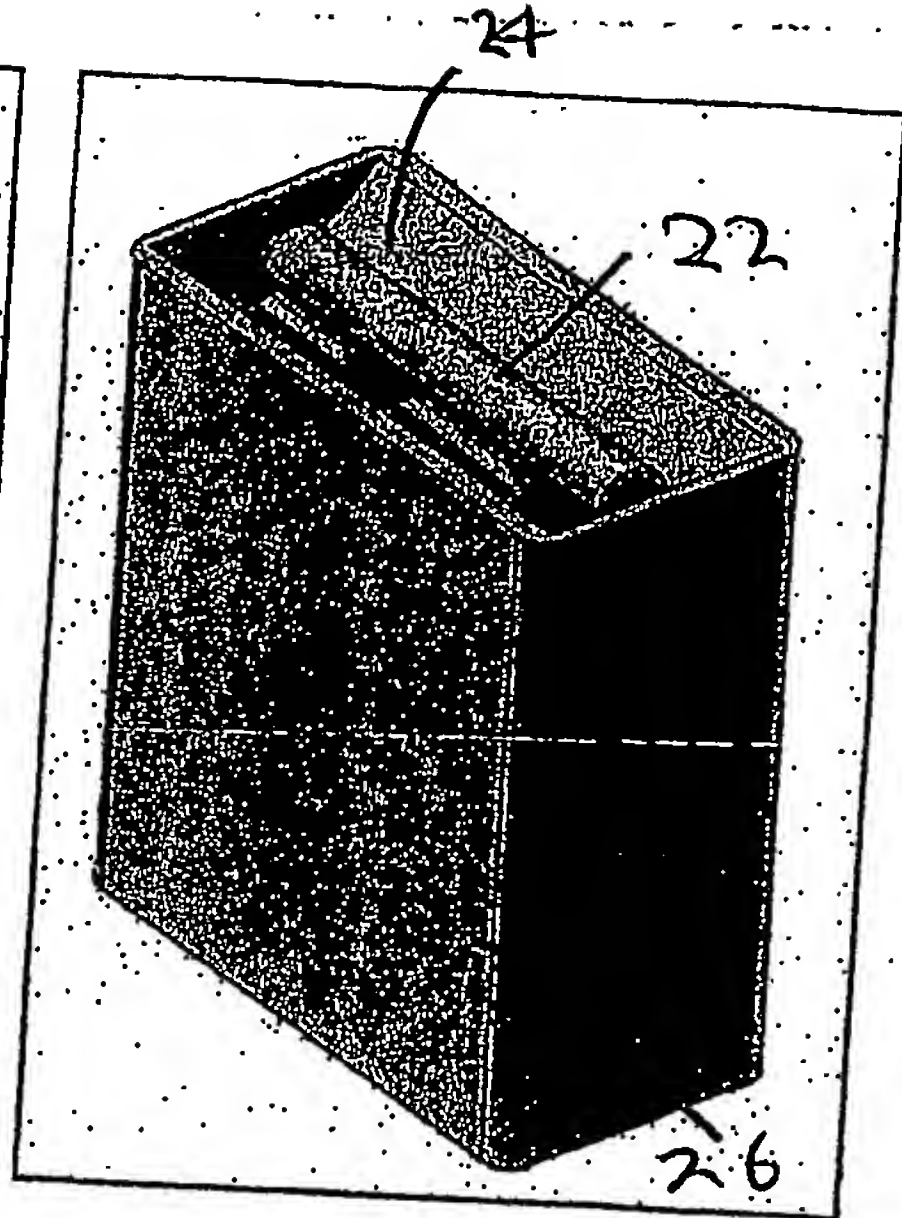


Diagram L  
FIG 5

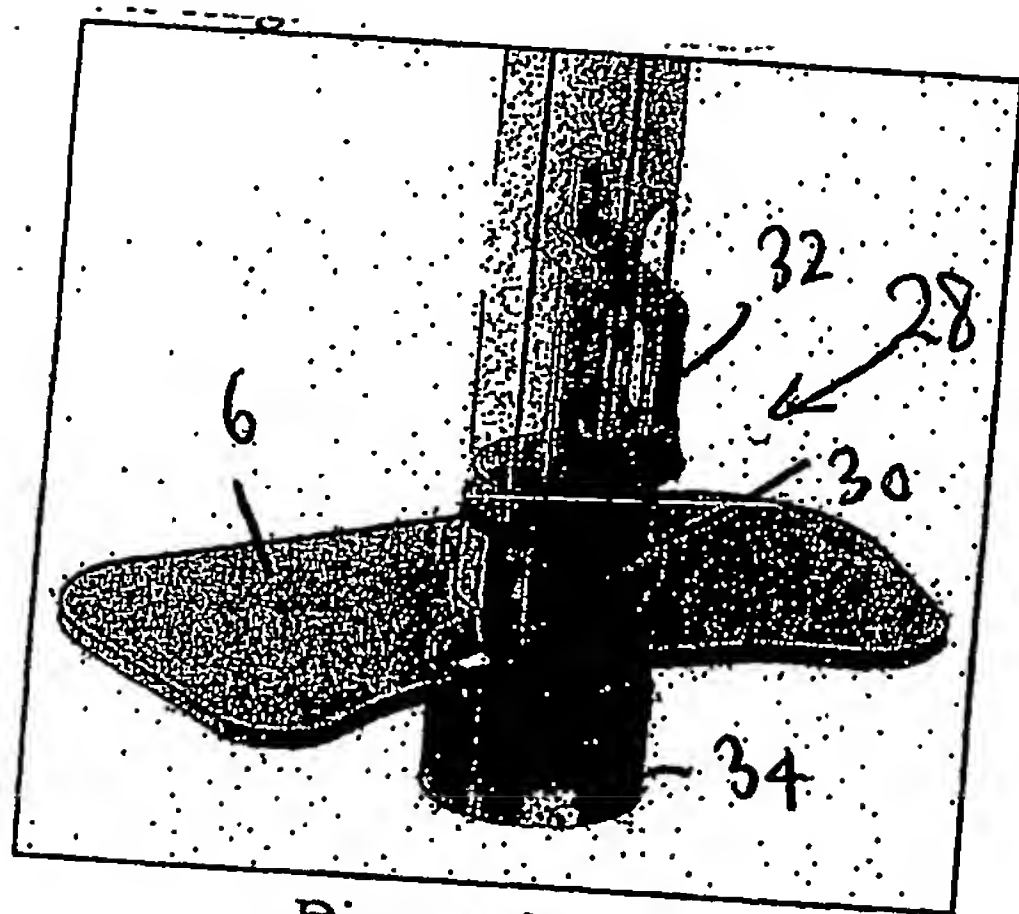


Diagram M  
FIG 6

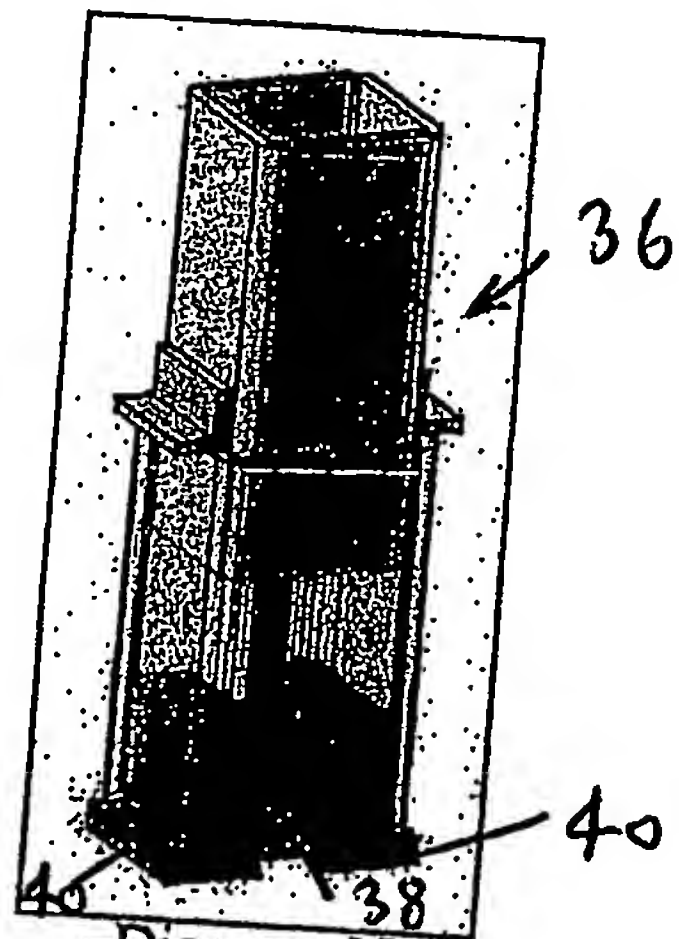
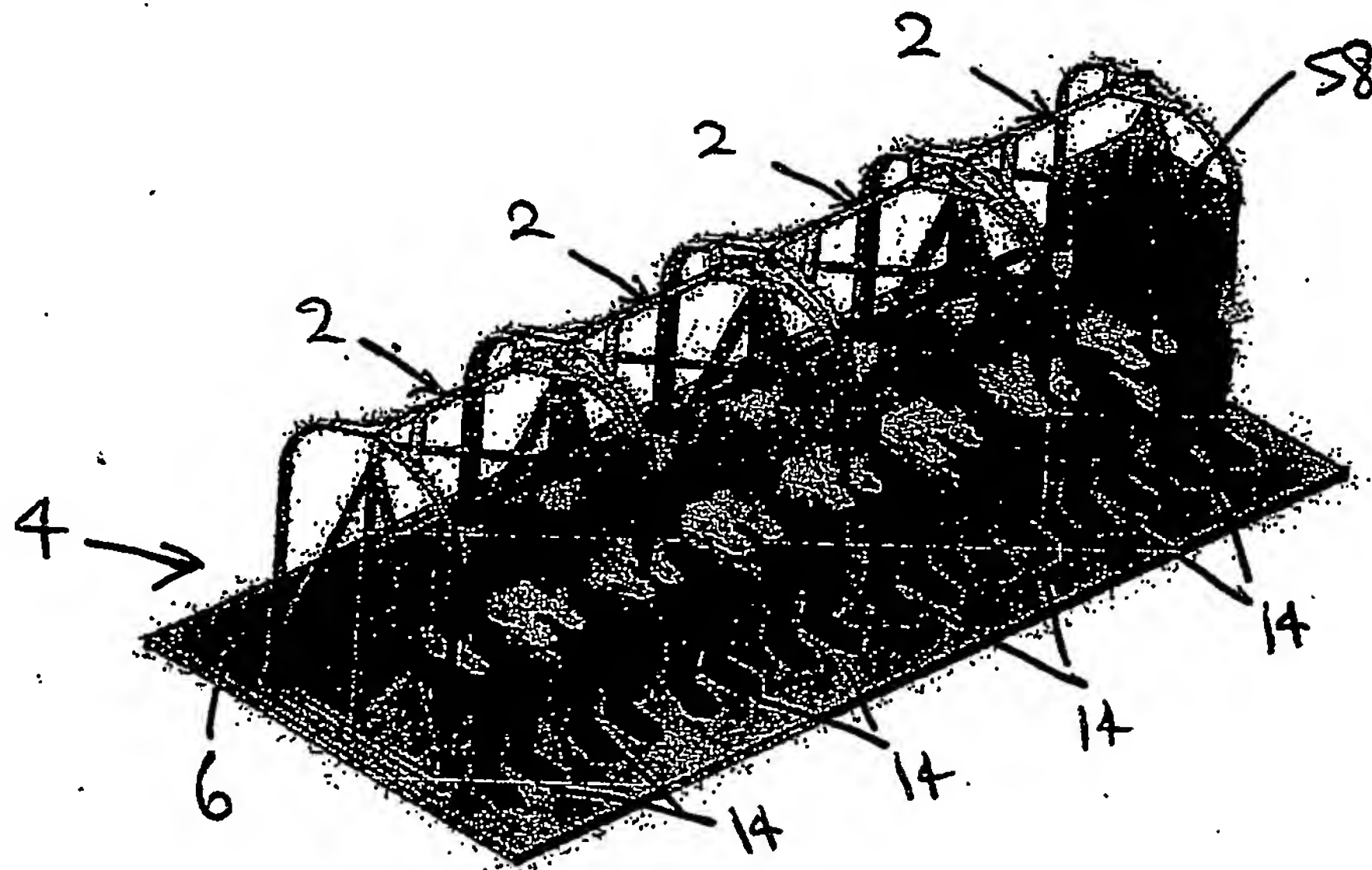
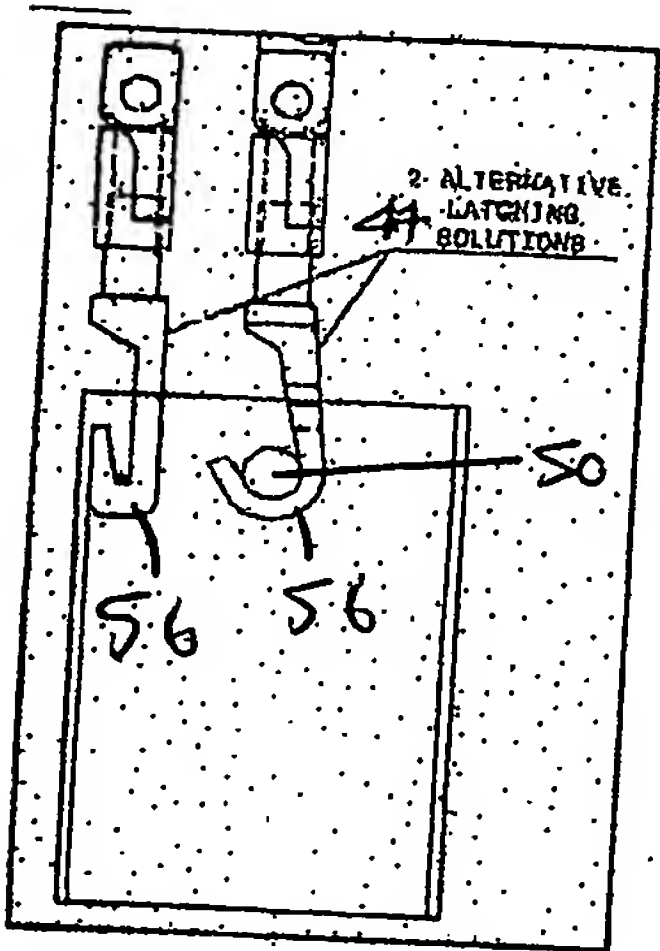
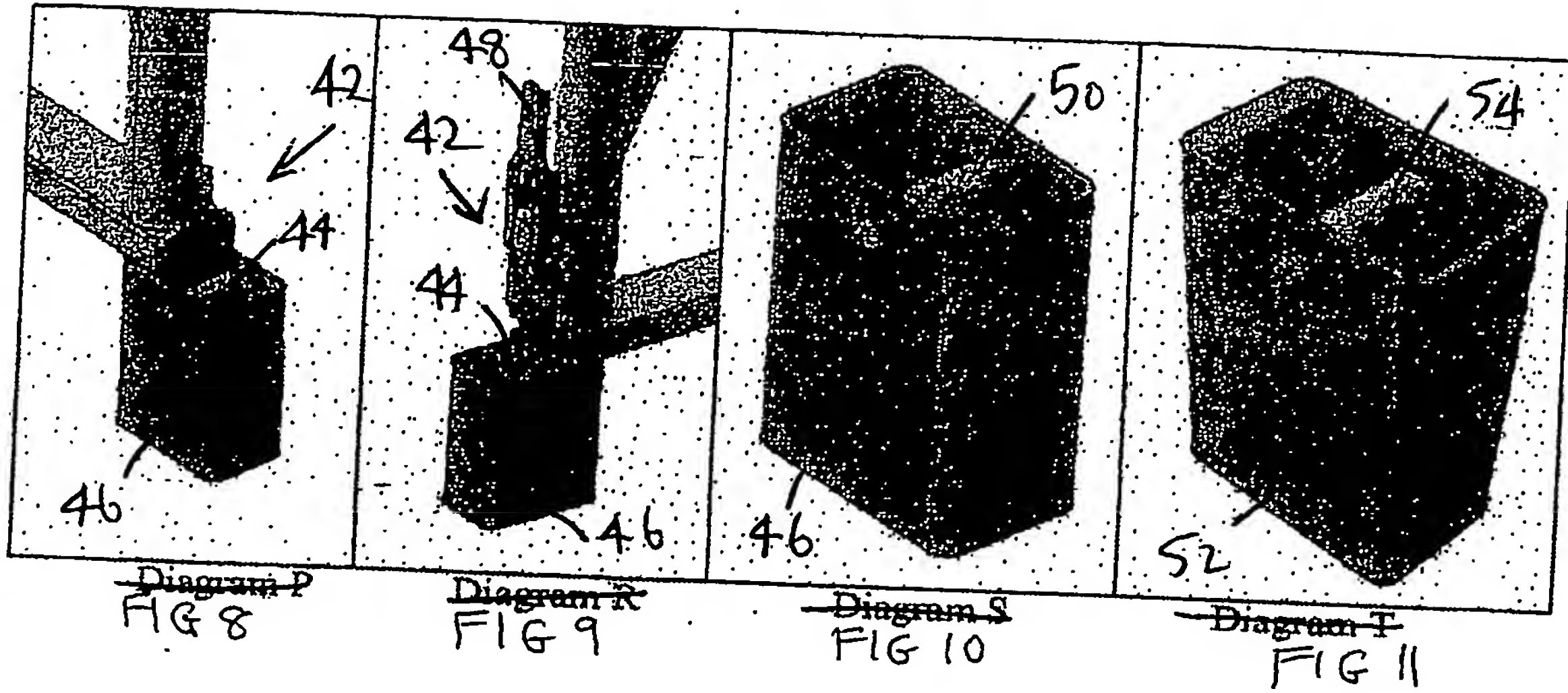


Diagram N  
FIG 7





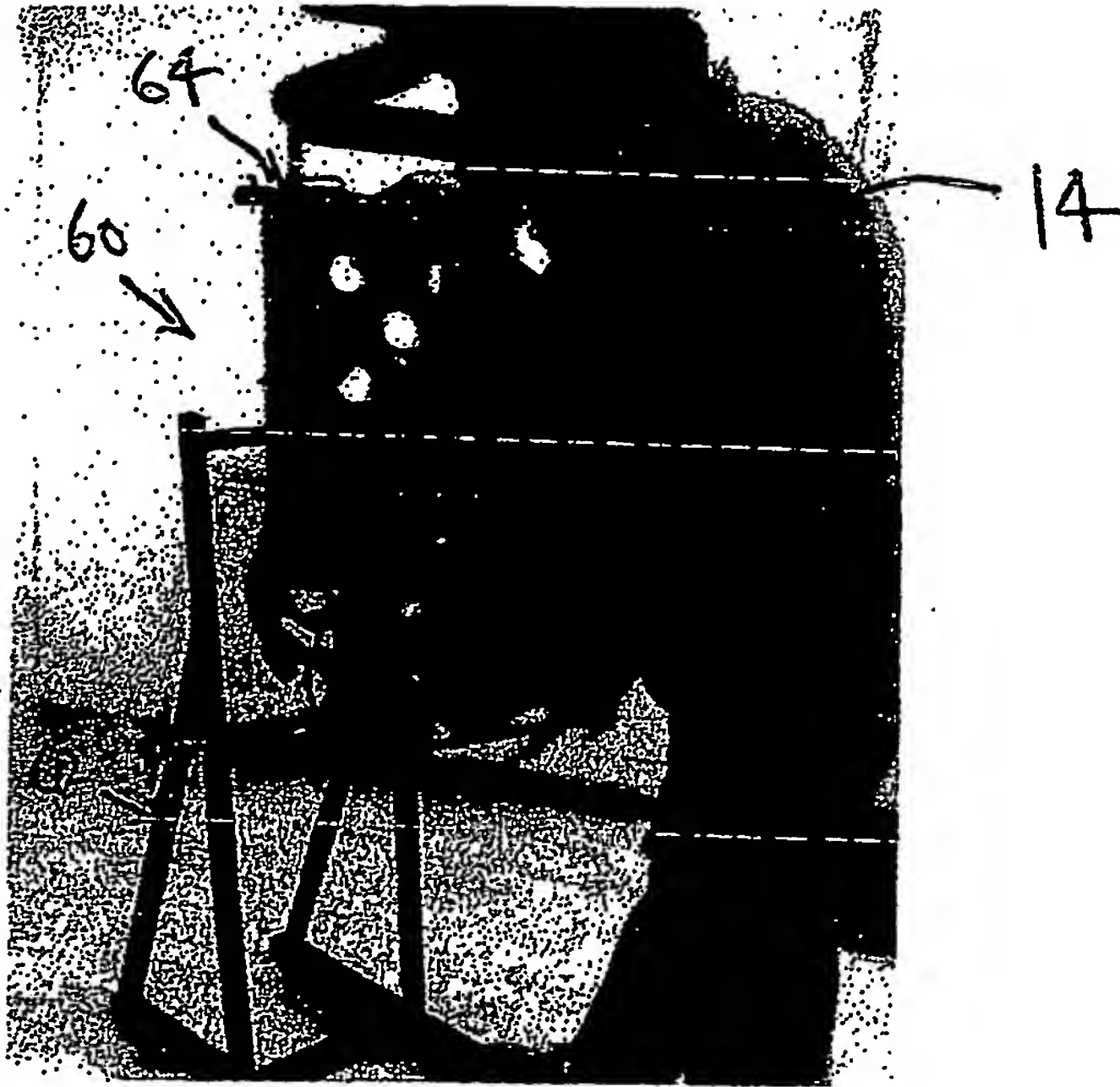


FIG 14

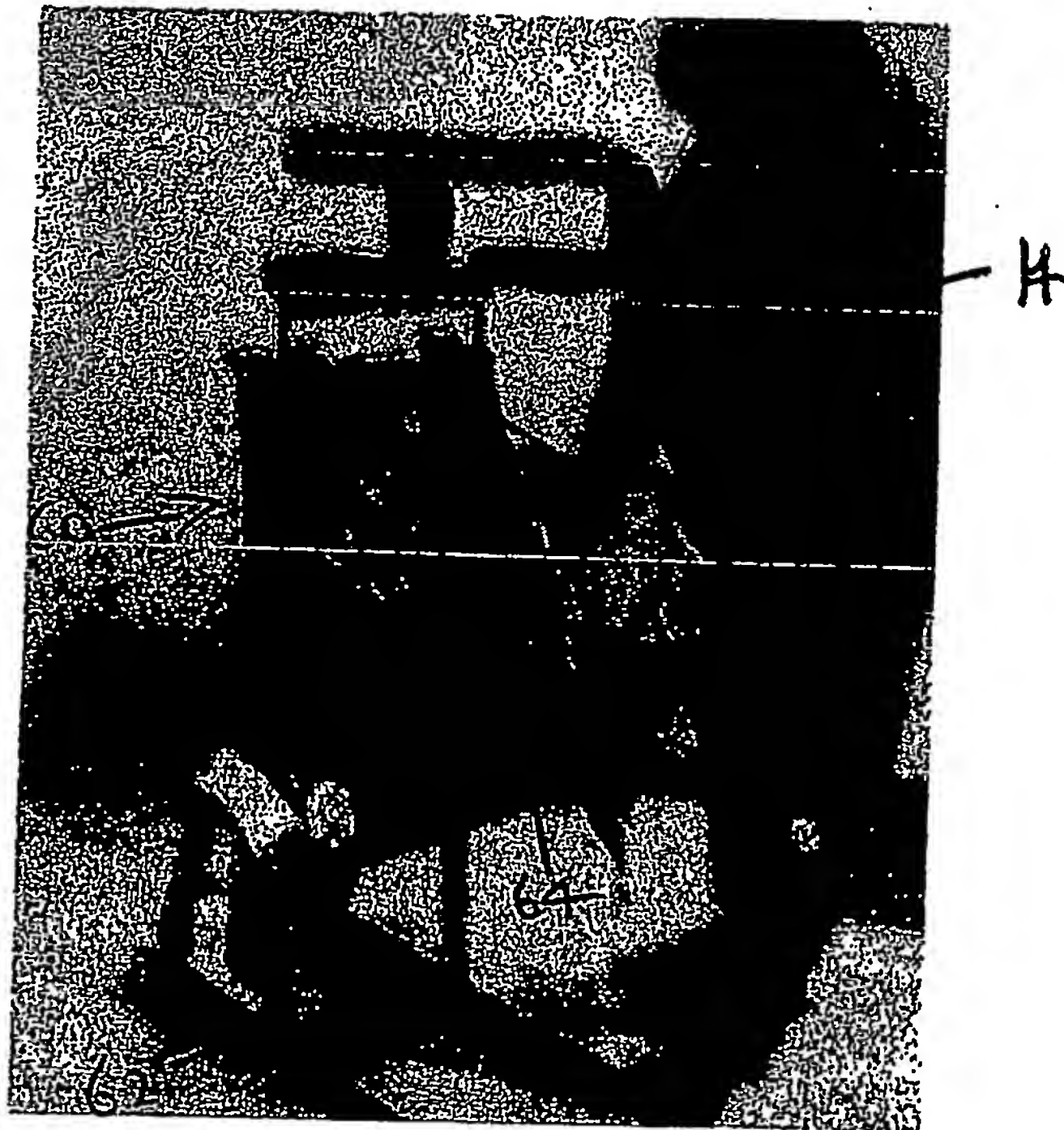


FIG 15

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FIG 16



FIG 17

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6/8  
ROPS FRAME 'FLAT PACKING'

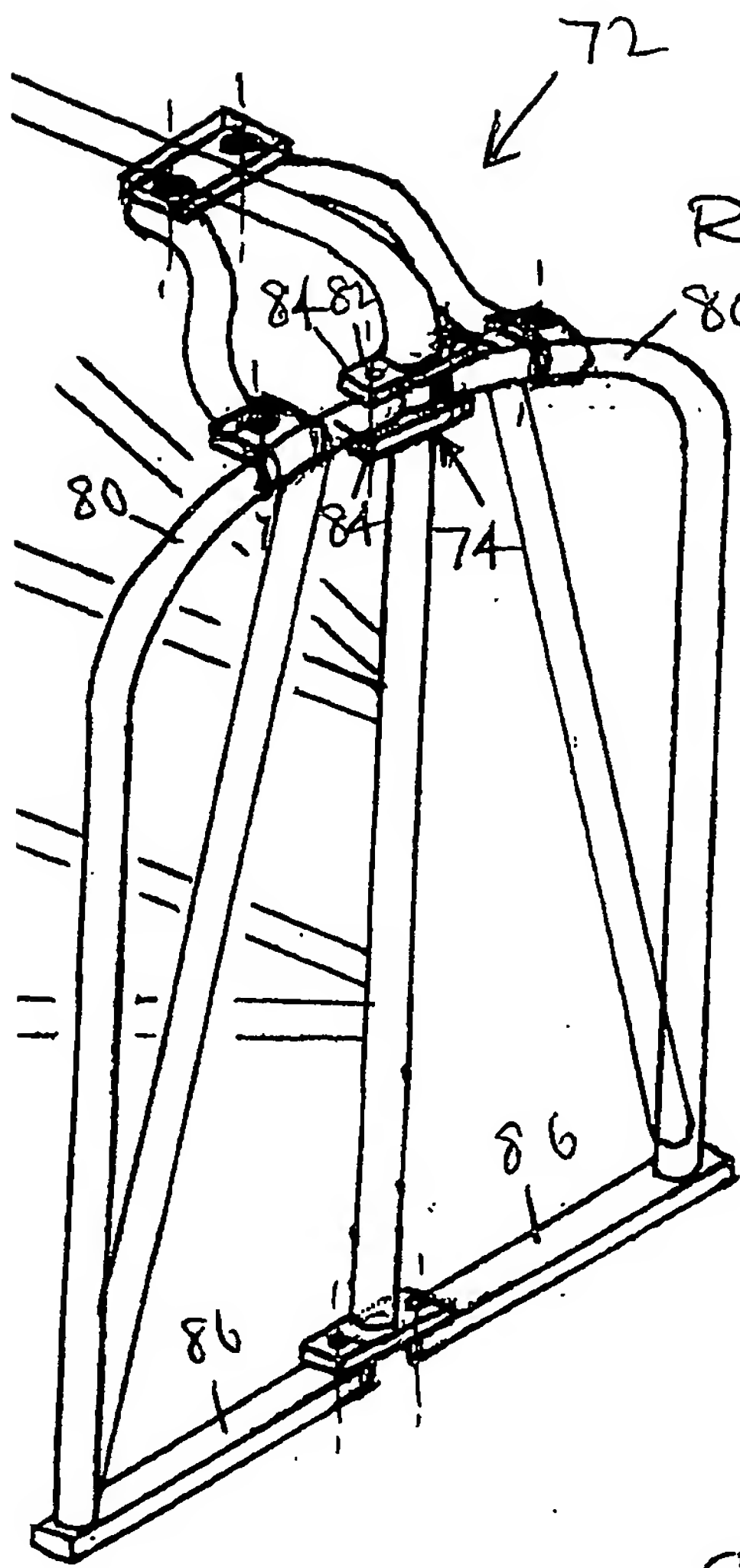


FIG 18

90°  
ROTATION.

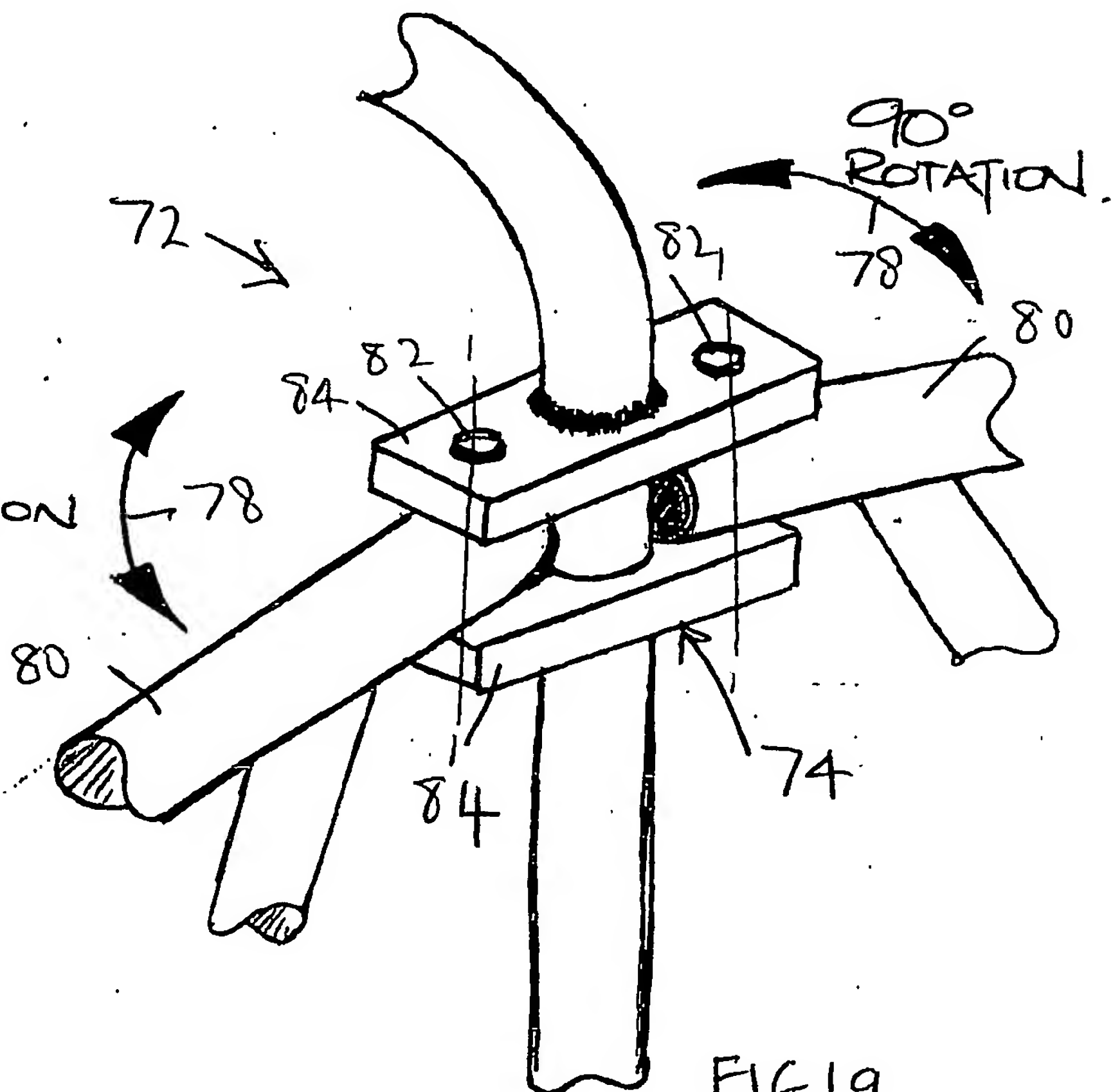


FIG 19  
TOP JOINT

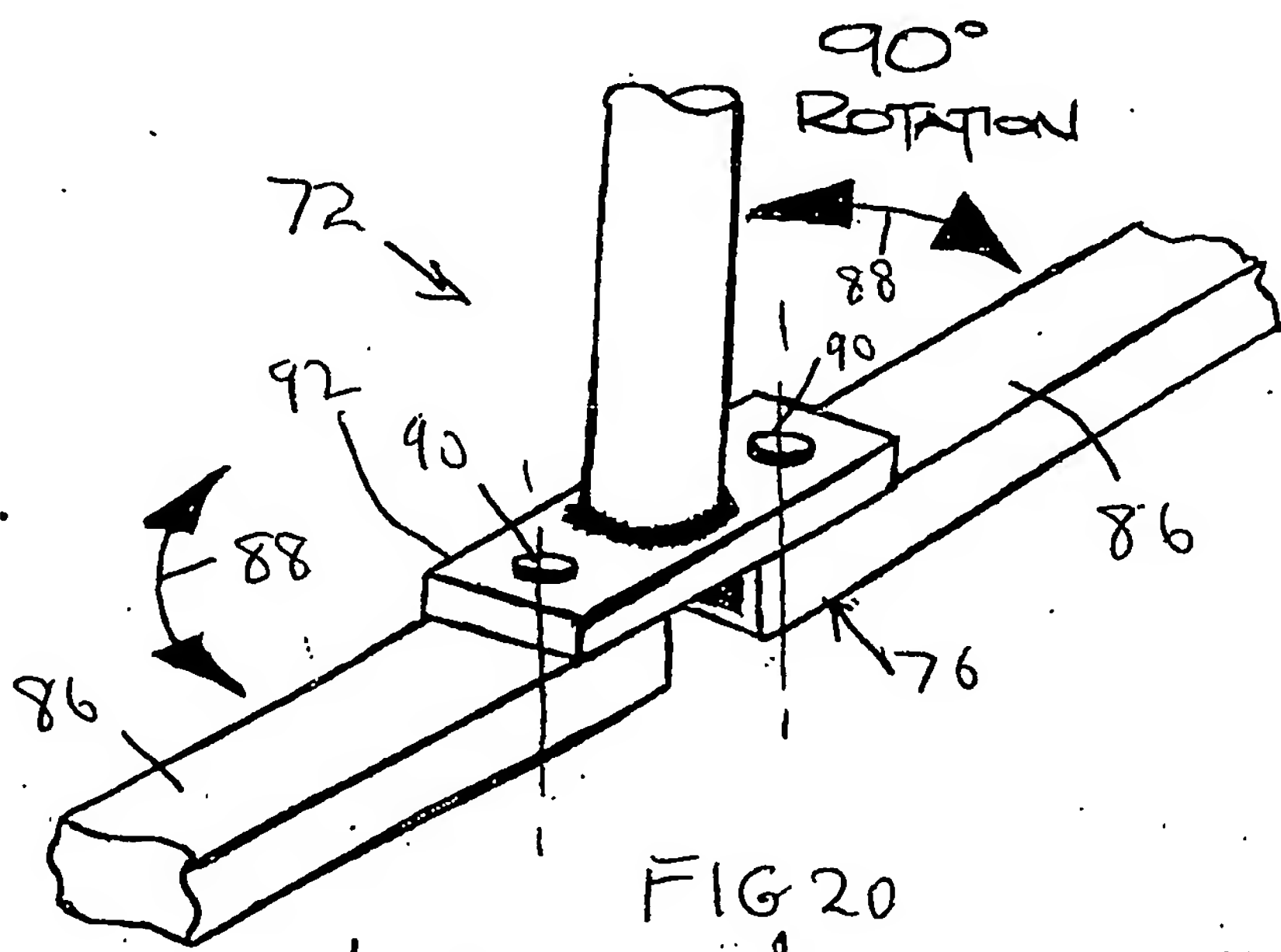
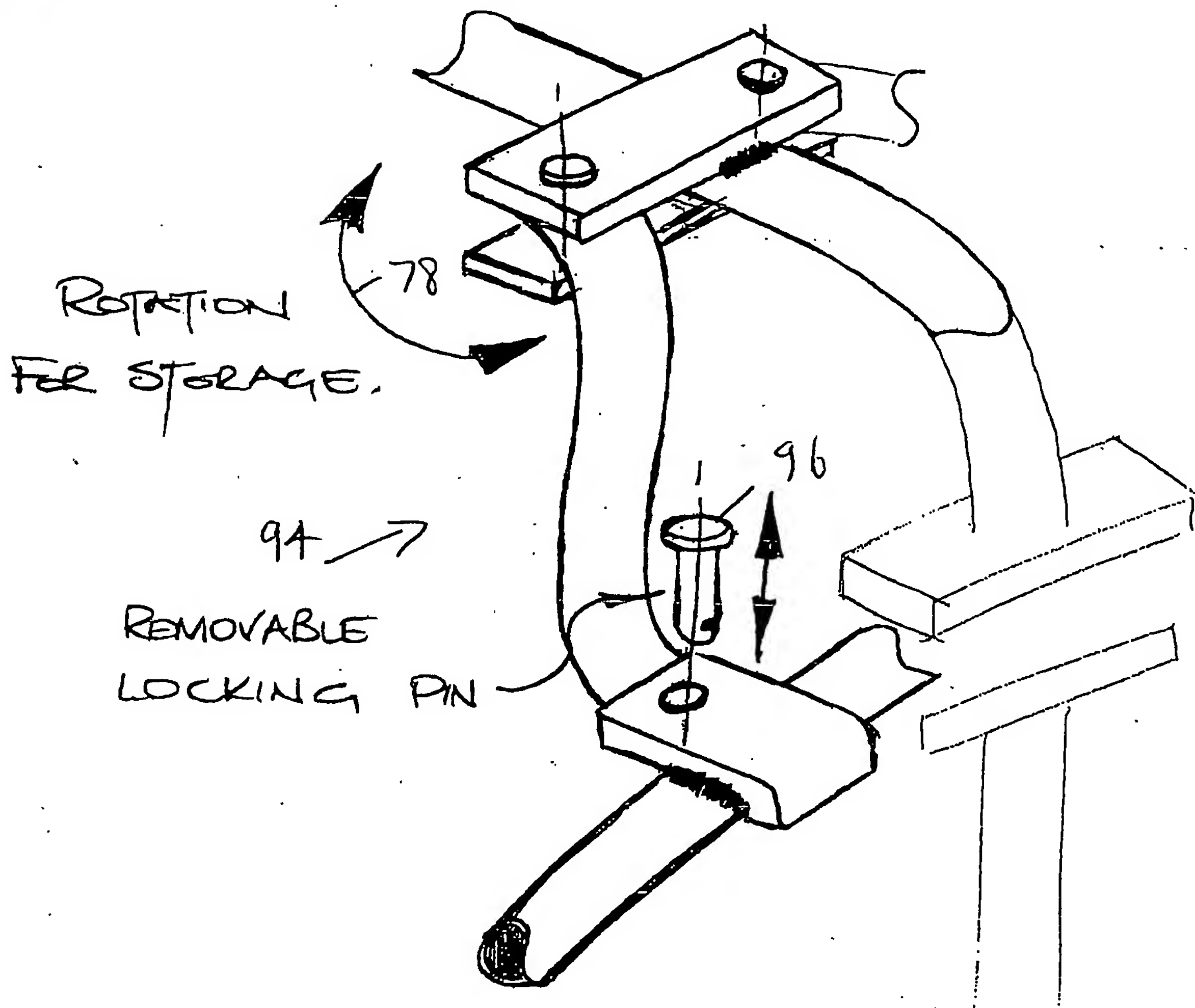


FIG 20  
LOWER JOINT.



7/8  
ROPS FRAME 'FLAT PACKING'



TOP JOINT FIG 21  
CORNER BRACING.

8/8

# SEAT DEMOUNT USING SPRING BOLT

SEAT PICTORIAL

LOWER LOCKING PIN  
100

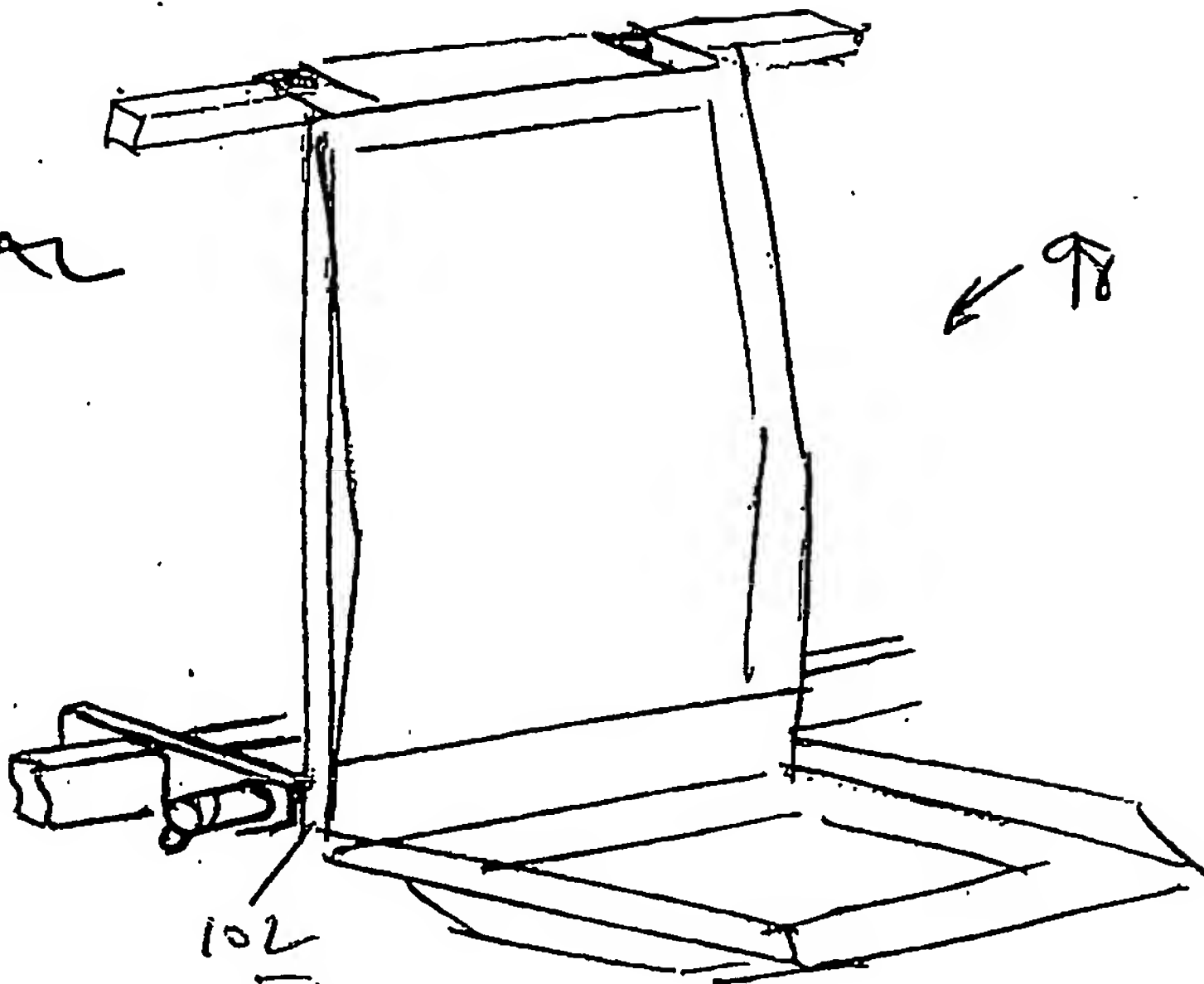
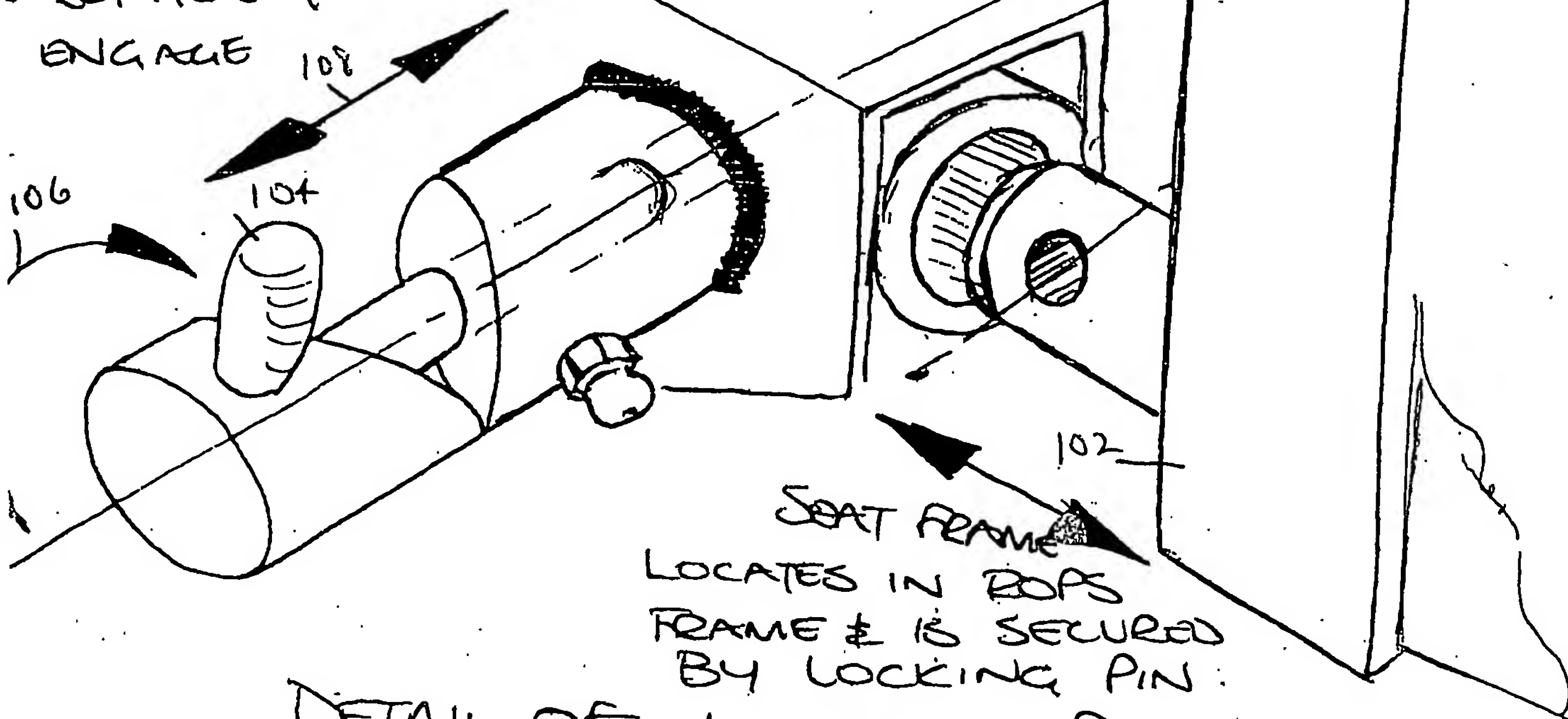


FIG 22

100  
↓  
ING LOADED  
& ROTATES  
ENGAGE



DETAIL OF LOCKING PIN

(DISENGAGED)

FIG 23